

## REMARKS

### *Status of claims*

Applicants thank the Examiner for the consideration given to the present application. Claim 5 has been amended, support of which may be found in the specification and figures. Claims 15 and 16 have been added to further clarify the invention, support of which may be found in the specification and figures. Claims 1, 2, and 4-16 are pending in the present application. No new matter has been added to the claims.

### *Amendment to the Specification*

The Examiner objected to the specification because he requested the status of the parent application (now U.S. Patent 6,733,827) to be updated. Applicants previously updated the first sentence of the specification to reflect the current status of the parent application as U.S. Patent No. 6,733,827.

### *Rejections under 35 U.S.C. §112*

Claim 5 has been rejected under 35 U.S.C. §112 as failing to comply with the written description requirement. The Examiner asserted that the claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor had possession of the claimed invention. This rejection is traversed, as support for the present claims can be found, for example, on page 4, lines 18-20 of the specification. Applicants respectfully request reconsideration and that the rejection of claim 5 under 35 U.S.C. §112 be withdrawn.

### *Rejections under 35 U.S.C. §103*

Claims 1-2 and 4-12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Economy et al. (U.S. Patent No. 5,834,114) in view of Buzzelli (U.S. Patent No. 3,650,834). Claims 13-14 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Economy et al. in view of Buzzelli '834, as applied to claim 1, above, and further in view of Buelow et al. (U.S. Patent 6,006,797). The Examiner asserted that Economy et al. teach a method for forming a filter material comprising the steps of:

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- a) coating a fiber with a carbonizable precursor coating;
- b) carbonizing said coating; and
- c) activating said coating.

The Examiner also asserted that Economy et al. is open to the use of other materials that will produce carbonizable coatings. The Examiner further asserted that Buzzelli teaches the formation of an activated carbon electrode, which is formed by charring and activating lignosulfonate. Thus, the Examiner concluded that it would have been obvious to have used the lignosulfonate of Buzzelli as the carbon precursor in place of the phenolic resin of Economy et al. to form a coating on a filter particle. Also, the Examiner asserted that Buelow et al. teach activated carbon compositions with a specific mesopore volume of 0.9 mL/g and a specific macropore volume of 0.15 mL/g and thus teach the sum of mesopore and macropore specific volumes is 1.05 mL/g of claim 13.

Applicants respectfully traverse these rejections and respectfully submit that the Examiner has not met the burden of establishing a prima facie case of obviousness under §103. MPEP §2145. In order to establish a prima facie case of obviousness under §103, the Examiner has the burden of showing, by reasoning or evidence, that: 1) there is some suggestion or motivation, either in the references themselves or in the knowledge available in the art, to modify that reference's teachings; 2) there is a reasonable expectation on the part of one of ordinary skill in the art that the modification or combination has a reasonable expectation of success; and 3) the prior art references (or references when combined) teach or suggest all the claim limitations. MPEP §2145. The Federal Court has held, "Particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed." *In re Kotzab*, 217 F.3d 1365, 2371 (Fed. Cir. 2000). "In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." *In re Rouffet*, 149 F.3d 1350, 1357 (Fed Cir. 1998).

No where in Economy et al. or Buzzelli, singularly or in combination, is there a teaching, suggestion, or motivation to provide the invention in the manner claimed. Applicants' independent claim 1 recites, *inter alia*, a process for forming a filter material that includes the

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following steps: i) coating a filter particle with a coating that comprises a lignosulfonate; ii) carbonizing the coating; and iii) activating the coating. Here, the Examiner concluded, "The suitability of the precursor of Buzzelli to form the desired coating of Economy would have motivated its use." To support this conclusion, the Examiner incorrectly asserts that Buzzelli teaches that lignosulfonates are suitable as decomposable precursors to form activated carbon coatings. In sharp contrast to this assertion, Buzzelli is completely void of any teaching on coatings, let alone the suitability of a coating comprising a lignosulfonate for coating a filter particle as claimed by the Applicants. Applicants submit that Buzzelli only teaches that a cathode for a battery may be derived from a carbon that is carbonized and activated such as an activated sodium lignosulfonate char (col. 2, lines 12-16), but this does not necessarily teach or suggest that sodium lignosulfonate may effectively coat a filter particle.

The Examiner, perhaps in an attempt to overcome this deficiency, asserted that Economy et al.'s teaching that it is open to precursors other than those listed was sufficient to motivate one of ordinary skill in the art to look to Buzzelli's lignosulfonate precursor for a battery cathode. However, Applicants assert that although Economy et al. teach coatings may be made from "other resins that will produce a reasonable concentration of chars," Economy et al. only specifically teach a coating made from a phenolic resin which requires the additional step of cross linking the coating after the fiber material is coated with the resin. Thus, neither Buzzelli nor Economy et al., singularly or in combination, teach or suggest a lignosulfonate is suitable for coating filter particles as claimed by the Applicants. Therefore, Applicants submit that the Examiner's reasoning is by the evidence of record and appears to be based only upon Applicants' own teachings. The Federal Circuit has further held, "Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." *In re Dembicza*k, 175 F.3d 994, 999 (Fed. Cir. 1999). Applicants respectfully submit that this requirement for a showing of a teaching or motivation to combine has not been met by the Examiner.

Applicants further submit that the combined teachings of Economy et al. and Buzzelli would require one skilled in the art at the time of the invention to try numerous, if not infinite, parameters to achieve the invention as claimed by Applicants. "One cannot base obviousness

upon what a person skilled in the art might try or might find obvious but rather must consider what the prior art would have led a person skilled in the art to do." *In re Tomlinson*, 150 USPQ 623 (CCPA 1966). An improper 'obvious to try' rationale is being applied when one skilled in the art would have "to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical **or no direction as to which of many possible choices is likely to be successful**". See MPEP 2145(X)(B).

Here, Economy et al. teach activated carbon coatings for filter particles and that "other resins that will produce a reasonable concentration of chars" may be used. The term, "resin" is not defined within the specification of Economy et al. It is defined in the American Heritage Dictionary® as "Any of numerous clear to translucent yellow or brown, solid or semisolid, viscous substances of plant origin, such as copal, rosin, and amber, used principally in lacquers, varnishes, inks, adhesives, synthetic plastics, and pharmaceuticals; or any of numerous physically similar polymerized synthetics or chemically modified natural resins including thermoplastic materials such as polyvinyl, polystyrene, and polyethylene and thermosetting materials such as polyesters, epoxies, and silicones that are used with fillers, stabilizers, pigments, and other components to form plastics."<sup>1</sup> In addition, the term, "char" is defined in the American Heritage Dictionary® as "A substance that has been scorched, burned, or reduced to charcoal."<sup>2</sup> Moreover, many polymers (resins) can be carbonized and activated, but that does not necessarily mean that such an activated, carbonized polymer will effectively coat a filter particle. Alternatively, when carbonized and activated, some polymers cannot stay as coatings because the act of carbonization and activation effectively destroys too much of the polymer.

Furthermore, in teaching what materials the battery cathode may be derived from, Buzzelli states, "The carbon employed in the present invention may be derived from such material as activated petroleum coke, wood char, activated sodium lignosulfonate char, activated bituminous coal, polyvinylidene chloride char, polyacrylonitrile char and the like." (col. 2, lines 12-16). Buzzelli further teaches that graphite may also be used for cathode fabrication. (col. 2, lines 17-19). Buzzelli teaches various materials that may be carbonized and activated to form a

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<sup>1</sup> The American Heritage® Dictionary of the English Language, Fourth Edition Copyright © 2004, 2000 by Houghton Mifflin Company. Published by Houghton Mifflin Company.

<sup>2</sup> Id.

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cathode, but offer one of ordinary skill in the art no suggestion for forming a coating prior to carbonization and activation as claimed. Applicants further submit that because Economy et al. or Buzzelli, singularly or in combination, do not teach or suggest a coating comprising a lignosulfonate, one of ordinary skill in the art would not have had a reasonable expectation that this combination would successfully form such a coating as claimed by Applicants at the time of the invention. Thus, Applicants respectfully submit that Economy et al.'s teaching that other resins will produce a reasonable char, without mentioning lignosulfonate, would not motivate one skilled in the art to look to Buzzelli merely because Buzzelli mentions sodium lignosulfonate amongst a list of several materials that may be carbonized and activated to derive a cathode for a battery. Therefore, Applicants submit that neither reference, singularly or in combination, teach, motivate, or suggest coating a filter particle with a coating that comprises a lignosulfonate as recited by Applicants' claim 1.

Finally, Applicants respectfully assert that the combination of Economy et al. and Buzzelli is improper as the references themselves are non-analogous. In order to rely on a reference as a basis for rejection of an applicants' invention, the reference must either be in the field of the Applicants' endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992); See also *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986). A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992); See also *Wang Labs. Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Circ. 1993).

Applicants first assert that water and air filters are not in the same field as the manufacture of batteries. Applicants further submit, as set forth above, just because Economy et al. teach that other resins will produce a reasonable concentration of chars may be used as coatings, Economy et al. teachings do not make Buzzelli's teaching of activated carbons such as sodium lignosulfonate for battery cathodes reasonably pertinent because neither reference, singularly or in combination, teach, motivate or suggest that a coating comprising a lignosulfonate may be used to coat a filter particle.

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Therefore Applicants respectfully submit that it would not have been obvious to one of ordinary skill in the art at the time of the present invention to combine Buzzelli with Economy et al. Accordingly, Applicants respectfully request the rejection of independent claim 1 under 35 U.S.C. §103 be withdrawn. As claims 2 and 4-15 depend from independent claim 1, Applicants request that the rejection of these claims be withdrawn as well. Based upon the reasons set forth above, Applicants also believe new claim 16 is in condition for allowance.

*Rejections Under 35 USC §101 Double Patenting*

Claim 3 has been rejected under 35 U.S.C. §101 as claiming the same invention as that of claim 1 of prior U.S. Patent No. 6,733,827. Accordingly, Applicants have canceled claim 3 without prejudice. Thus, Applicants respectfully request the rejection under 35 U.S.C. §101 double patenting be withdrawn.

*Rejections Under Non-Statutory Obviousness-Type Double Patenting*

Claims 1-2 and 4-14 have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,733,827. Applicants respectfully traverse this rejection because the claims of the present invention are patentably distinct from the claims of the cited patent.

However, to simplify the issues in the present application, Applicants concurrently submit with this response the appropriate Terminal Disclaimer over U.S. patent No. 6,733,827 and an executed Power of Attorney. In submitting this Terminal Disclaimer, Applicants state for the record that this Disclaimer is not an admission of obviousness in view of the cited U.S. patent or applications. *Quad Envtl. Corp. v. Union San. Dist.*, 20 USPQ2d 1392 (Fed. Cir. 1991). Therefore, Applicants respectfully request withdrawal of the obviousness-double patenting rejections.

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#### CONCLUSION

Applicants respectfully submit that the present application is in condition for allowance. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,  
DINSMORE & SHOHL L.L.P.

By



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